

Idaho Bird Inventory and Survey (IBIS)

2007 Annual Report



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ABSTRACT

The Idaho Bird Inventory and Survey (IBIS) is a plan to monitor all birds (waterbirds, shorebirds, waterfowl, and landbirds) throughout the state in a coordinated, standardized manner. Phase I of the IBIS Program emphasizes monitoring of aquatic species and habitats. To continue monitoring of aquatic species initiated in 2004 through 2006 and to participate in the region-wide survey of Caspian Terns (coordinated by USFWS), we conducted aquatic bird monitoring at 29 wetlands throughout the state in 2007.

Monitoring efforts included general aquatic bird counts, marsh bird playback surveys, and colonial waterbird counts. In addition to these surveys, we initiated two waterbird banding projects, where we banded 320 juvenile white-faced ibis and 600 juvenile American white pelicans (*Pelecanus erythrorhynchos*), and continued long-billed curlew monitoring in southern Idaho. Over 113,000 bird detections were recorded during general aquatic bird counts in winter (November 2006 through March 2007; 45,134 detections), breeding (April through July 2007; 57,532 detections), and fall migration (August through October 2007; 11,133 detections) periods. Thirty-two percent of these detections were waterbirds and shorebirds, and 68% were waterfowl. Marsh bird surveys at 13 wetlands detected all targeted species (sora [*Porzana carolina*], Virginia rail [*Rallus limicola*], American bittern [*Botaurus lentiginosus*], pied-billed grebe [*Podilymbus podiceps*], and Wilson's snipe [*Gallinago delicata*]). For the region-wide survey of Caspian Terns, all 6 known Caspian Tern colonies were surveyed, where 108 nests were detected. In addition, both American white pelican colonies in Idaho were surveyed, where 3,662 nests were detected. Overall, 83 aquatic bird species were detected during surveys: 31 were waterbirds; 30 were waterfowl; and the remaining 22 were shorebirds. In addition, 24 of the 25 aquatic birds identified as priority species (i.e., Species of Greatest Conservation Need) in Idaho's Comprehensive Wildlife Conservation Strategy (CWCS) were detected during IBIS surveys (only the harlequin duck [*Histrionicus histrionicus*] went undetected). These results suggest that IBIS is continuing to provide an immediate and effective tool with which to implement the bird monitoring components of the CWCS.

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INTRODUCTION

Conservation and management of Idaho's birds depends on adequate monitoring information, which, until very recently, has not existed. Basic information on distribution and abundance is poorly understood for many bird species. Monitoring information is required by legislative and land/wildlife management agency mandates as well as a host of forest plans, ecoregional plans, and preserve management plans; it also is one of the 8 required elements of Idaho's Comprehensive Wildlife Conservation Strategy (CWCS; Idaho Department of Fish and Game 2005). To meet these needs, we have adopted a statewide coordinated all-bird monitoring program called the Idaho Bird Inventory and Survey (IBIS). In addition to being a required element of the CWCS, such a program was one of the highest priority needs identified in the Idaho Partners in Flight (IdPIF) Bird Conservation Plan (v1.0; Idaho Partners in Flight 2000). Importantly, IBIS offers an immediate and effective implementation opportunity for the bird monitoring components of Idaho's CWCS, which was approved by the U.S. Fish and Wildlife Service (FWS) in 2006.

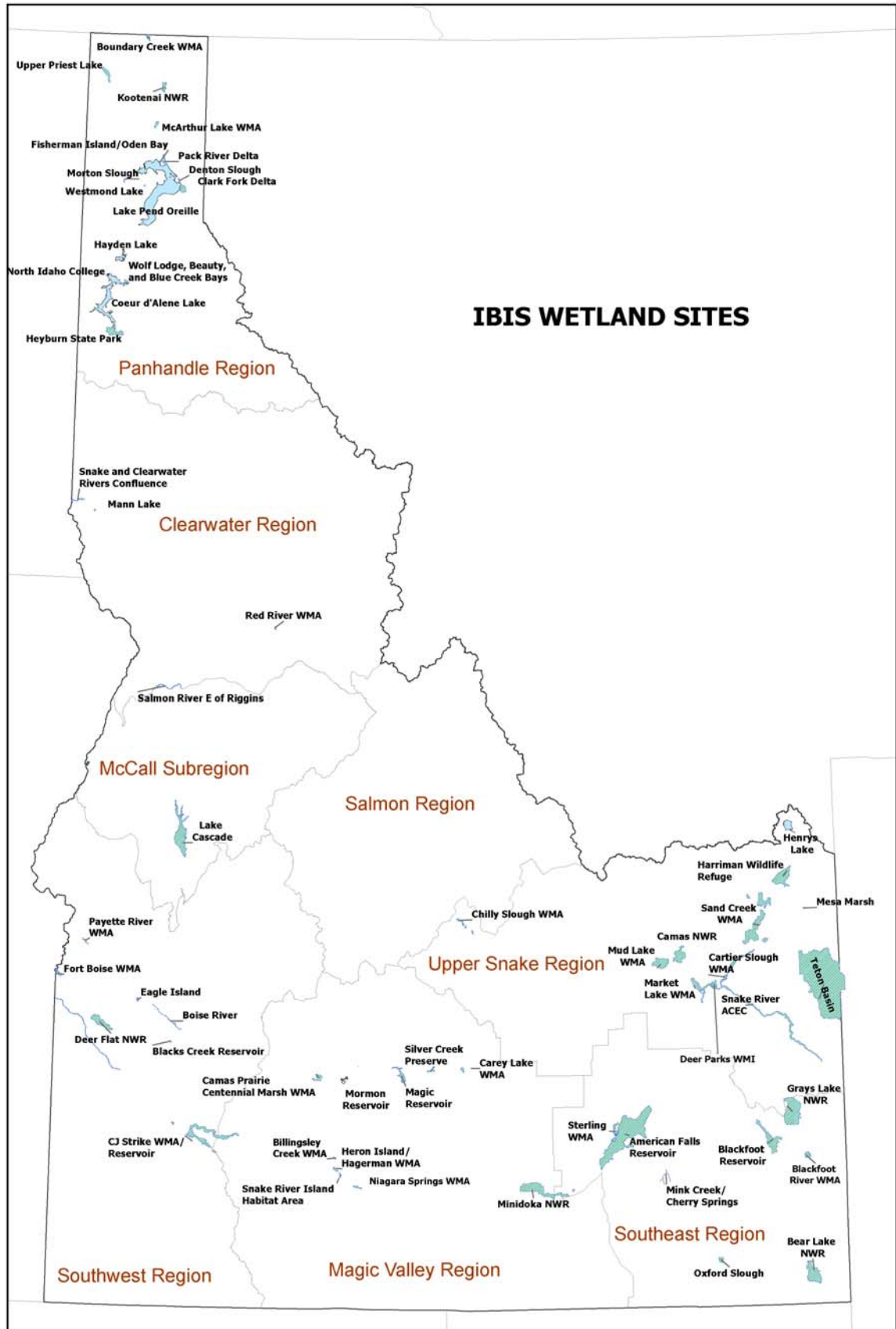
IBIS is designed to be part of a larger bird monitoring program called "Coordinated Bird Monitoring" (CBM) that is currently being developed at the national level. CBM is a joint effort by managers and bird monitoring specialists to improve the success of bird monitoring programs, and make the information available to all partners. Its approach focuses on: (1) providing information on specific land-management issues from reliable monitoring data; (2) describing focal species and quantitative survey objectives for each management issue; (3) choosing survey methods and estimating needed sample sizes; (4) storing all data in permanent, widely available data repositories; (5) analyzing data using methods endorsed by the appropriate professional societies; and (6) using effective methods for communicating results to decision-makers. This all-bird coordination effort is modeled after a long-standing program, implemented by the Flyway Councils, of continent-wide tracking of waterfowl to set management and harvest strategies for game species. As with the waterfowl model, coordinated all-bird monitoring is intended as a feedback system that can provide a scientific basis for management and conservation planning for birds of management concern.

Version 1.0 of the IBIS plan was completed in 2004, and includes discussion of management issues considered to be a high priority in Idaho, site descriptions for aquatic bird monitoring, suggested survey protocols, and important contact information. Electronic versions of the IBIS plan can be downloaded from the web at (<http://www.fishandgame.idaho.gov/cms/wildlife/nongame/birds/monitoring.cfm>) or requested on a CD from Colleen Moulton, Idaho's IBIS Coordinator (<mailto:cmoulton@idfg.idaho.gov>).

Phase I of IBIS has focused on aquatic birds, which is the least monitored avian group in Idaho. Preliminary work began in Spring 2004 and was greatly expanded in 2005 and 2006.

Similar to 2005 and 2006, survey efforts were spread across the state in 2007 (Fig. 1), with the hiring of 6 wildlife technicians to conduct aquatic bird surveys. These technicians were distributed throughout the state, with 2 focused on wetlands in Idaho

Figure 1. Discrete wetland sites proposed for monitoring in the IBIS plan.



Department of Fish and Game (IDFG) Region 1 (Panhandle), 2 in Regions 3 (Southwest) and 4 (Magic Valley), and 2 in Regions 5 (Southeast), 6 (Upper Snake), and 7 (Salmon). Because wetland habitat is relatively rare in IDFG Region 2 (Clearwater), no surveys were conducted in this region in 2007.

Thus far, aquatic bird monitoring under the IBIS framework includes 3 survey types: general aquatic bird surveys, secretive marsh bird surveys, and colonial waterbird counts. Aquatic bird surveys encompass all avian species that are associated with aquatic habitats, including waterfowl (i.e., ducks, swans, and geese), shorebirds, and waterbirds (e.g., grebes, gulls, herons, egrets). These aquatic bird surveys were conducted at 11 IDFG WMAs, including Camas Prairie Centennial Marsh, Coeur d'Alene River, and Mud Lake. Although secretive marsh birds (e.g., rails, bitterns, pied-billed grebes) and colonial waterbirds (e.g., pelicans, terns, ibis, grebes, herons) are counted when detected during general aquatic bird surveys, they are not adequately covered by this type of survey. Therefore, we have implemented targeted surveys for these 2 waterbird groups. To monitor secretive marsh birds, the IBIS program has joined the national marsh bird monitoring effort, and has adopted the playback technique. During 2007, playback surveys were conducted at 13 different wetland/marsh sites, including McArthur Lake WMA, Carey Lake WMA, and Bear Lake NWR. To participate in the regional survey of Caspian terns (*Sterna caspia*) coordinated by USFWS and to continue annual monitoring of pelican colonies, we counted nests at all known Caspian tern and American white pelican (*Pelecanus erythrorhynchos*) colony locations throughout the state. We also conducted weekly surveys of two western grebe (*Aechmophorus occidentalis*) colonies on IDFG WMA properties that are of concern as a result of frequent reproductive failures, and visited 6 heron rookeries in the southwest region of Idaho. The IBIS program also assisted with a new Harlequin duck survey effort in the Panhandle region, and initiated two banding projects for white-faced ibis and American white pelicans. Results from these efforts will be compiled in separate reports.

Future plans for the IBIS program include enhancing the landbird component of the all-bird monitoring effort (e.g., by improving the Breeding Bird Survey in Idaho), seeking additional help from "citizen scientists" to improve public participation, testing colonial waterbird protocols, and choosing 1 or 2 high priority management issues on which to focus landbird monitoring activities. To this end, we also initiated monitoring projects targeting long-billed curlews (*Numenius americanus*) and forest birds in 2007. For long-billed curlews, we conducted standardized curlew surveys within the Long-Billed Curlew Habitat Area of Critical Environmental Concern (ACEC) in southwestern Idaho and at Grays Lake NWR in eastern Idaho. In addition, we conducted intensive off-route surveys at both locations to establish estimates of density and to quantify detection bias. For forest birds, we collaborated with the U.S. Forest Service (Sawtooth National Recreation Area [SNRA]) and our own nongame regional biologist in the Salmon Region. High-elevation forest habitat (whitebark pine [*Pinus albicaulis*]) was surveyed in the SNRA for breeding woodpeckers, owls, and songbirds in conjunction with proposed restoration work (fall prescribed burning). In the Salmon Region, we used standardized protocols for sampling nocturnal birds to survey for forest owls on the Salmon-Challis National Forest and adjacent lands. Results from these efforts will be compiled in separate reports.

METHODS

Breeding Season Aquatic Bird Surveys

Bi-weekly or monthly aquatic bird surveys were conducted at 2 and 19 wetland sites, respectively (Table 1), beginning in mid-April or the first week of May and continuing through the end of July. These surveys were conducted by 2 IDFG technicians or volunteers (1 observer and 1 recorder) between sunrise and 1100 hours, during non-incident weather. Market Lake WMA was surveyed during evening hours because of visibility issues (survey route faces east). Surveys followed pre-established, digitized routes, where all aquatic birds that were either seen or heard (i.e., rails) along the route were recorded. Binoculars and high-powered scopes were used for observations, and surveys were conducted either from a vehicle or boat (canoe or motorized), or on foot.

Table 1. IBIS survey types and site locations, Spring/Summer 2007.

Site Name	Monthly Aquatic Bird Survey	Secretive Marsh Bird Survey	Colonial Waterbird Count
Panhandle/Clearwater			
Boundary Creek WMA	√	√	
Coeur d'Alene WMA	√	√	√
Denton Slough	√		√
Hayden Lake	√		
Mann Lake	√		
McArthur Lake WMA	√	√	
Morton Slough	√		
Oden Bay/Fisherman Island	√		
Westmond Lake		√	
Southeast/Upper Snake			
Bear Lake NWR	√	√	√
Blackfoot Reservoir			√
Camas NWR	√ *	√	
Henrys Lake	√		
Island Park Reservoir			√
Market Lake WMA	√ *	√	
Mesa Marsh	√		
Minidoka NWR			√
Mud Lake WMA	√	√	
Sterling WMA	√	√	
Southwest/Magic Valley			
Billingsley Creek WMA		√	
Blacks Creek Reservoir	√		
Camas Prairie Centennial Marsh	√	√	
Carey Lake WMA	√	√	
Fort Boise WMA	√		
Magic Reservoir			√
Mormon Reservoir	√		√
Silver Creek Preserve	√	√	

* Surveyed bi-weekly

Secretive Marsh Bird Surveys

We adopted a national playback survey method, as described in the Standardized North American Marsh Bird Monitoring Protocols (Conway 2005), for surveying secretive marsh birds in 13 marshes in Idaho (Table 1). For this method, marsh bird calls are broadcast from a portable CD player/stereo speaker unit to elicit responses from birds, and 2 observers record any target marsh birds (sora, Virginia rail, American bittern, pied-billed grebe, and Wilson's snipe) that are seen or heard during the survey. Presence of secondary marsh species (Table 2) is also recorded. Surveys for marsh birds in Idaho began the first week in May and ended by late June. Locations were surveyed during 3 survey periods, and both dawn and dusk surveys were conducted at each site to establish ideal timing for future surveys.

Table 2. Secondary marsh bird species, Spring 2007.

Common Name	Scientific Name	Species Code
American Coot	<i>Fulica americana</i>	AMCO
Brown-headed Cowbird	<i>Molothrus ater</i>	BHCO
Common Yellowthroat	<i>Geothlypis trichas</i>	COYE
Eared Grebe	<i>Podiceps nigricollis</i>	EAGR
Marsh Wren	<i>Cistothorus palustris</i>	MAWR
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	RWBL
Song Sparrow	<i>Melospiza melodia</i>	SOSP
Willow Flycatcher	<i>Empidonax traillii</i>	WIFL
Yellow-breasted Chat	<i>Icteria virens</i>	YBCH
Yellow-headed Blackbird	<i>Xanthocephalus xanthocephalus</i>	YHBL
Yellow Warbler	<i>Dendroica petechia</i>	YWAR

Colonial Waterbird Counts

To participate in the western regional survey of Caspian Terns, and continue annual monitoring of pelicans in Idaho, we surveyed all known tern and pelican colonies in the state (Table 1). We visited colonies during mid-to-late incubation, which is generally the least-disruptive time to enter a colony for these 2 species, and we followed guidelines for limiting length of disturbance as outlined by Steinkamp et al. (2003). To survey these colonies, 2–8 biologists and technicians walked parallel transect lines counting each nest encountered. Because of the ample number of people available for counts, we were able to get a complete count of nests in a relatively short time period (i.e., 30-90 minutes).

To monitor the western grebe colonies in Denton Slough (Pend Oreille WMA) and Coeur d'Alene WMA, the Panhandle Region IBIS crew visited the colonies weekly throughout the months of June and July. During each visit, they documented presence of adults, pairs, and nests, as well as the presence of boats in the colony area. To ensure that the colonies were not disturbed, all surveys were conducted by spotting scope from the shoreline.

Similar to western grebe colony surveys, heron rookeries were surveyed from a distance with binoculars or a spotting scope. Each rookery was surveyed once in early spring, before the trees had fully leafed out, and observers recorded all nests with at least one adult.

Fall/Migration Aquatic Bird Surveys

Following similar protocols to those described for the Breeding Season aquatic bird surveys above, 4 wetland sites were monitored either weekly (Mann Lake) or monthly (Market Lake WMA, Silver Creek Preserve, Sterling WMA), from early August through the end of October 2007. These surveys were conducted by 1 or more volunteers between sunrise and 1200 hours (to accommodate shortening days), with the exception of Market Lake WMA which was surveyed during evening hours.

Winter Aquatic Bird Surveys

Following similar protocols to those described for the Breeding Season aquatic bird surveys above, 5 wetland sites (Boise River IBA, Mann Lake IBA, Silver Creek Preserve, Snake/Clearwater Rivers Confluence IBA, Sterling WMA), were also monitored November 2006 through March 2007, by 1 or more volunteers or IDFG personnel. Because waterbirds during the winter appear to be more active and visible throughout the day than they are during the breeding season, these surveys did not have any limitations on completion time. However, they were generally completed by 1300 hours.

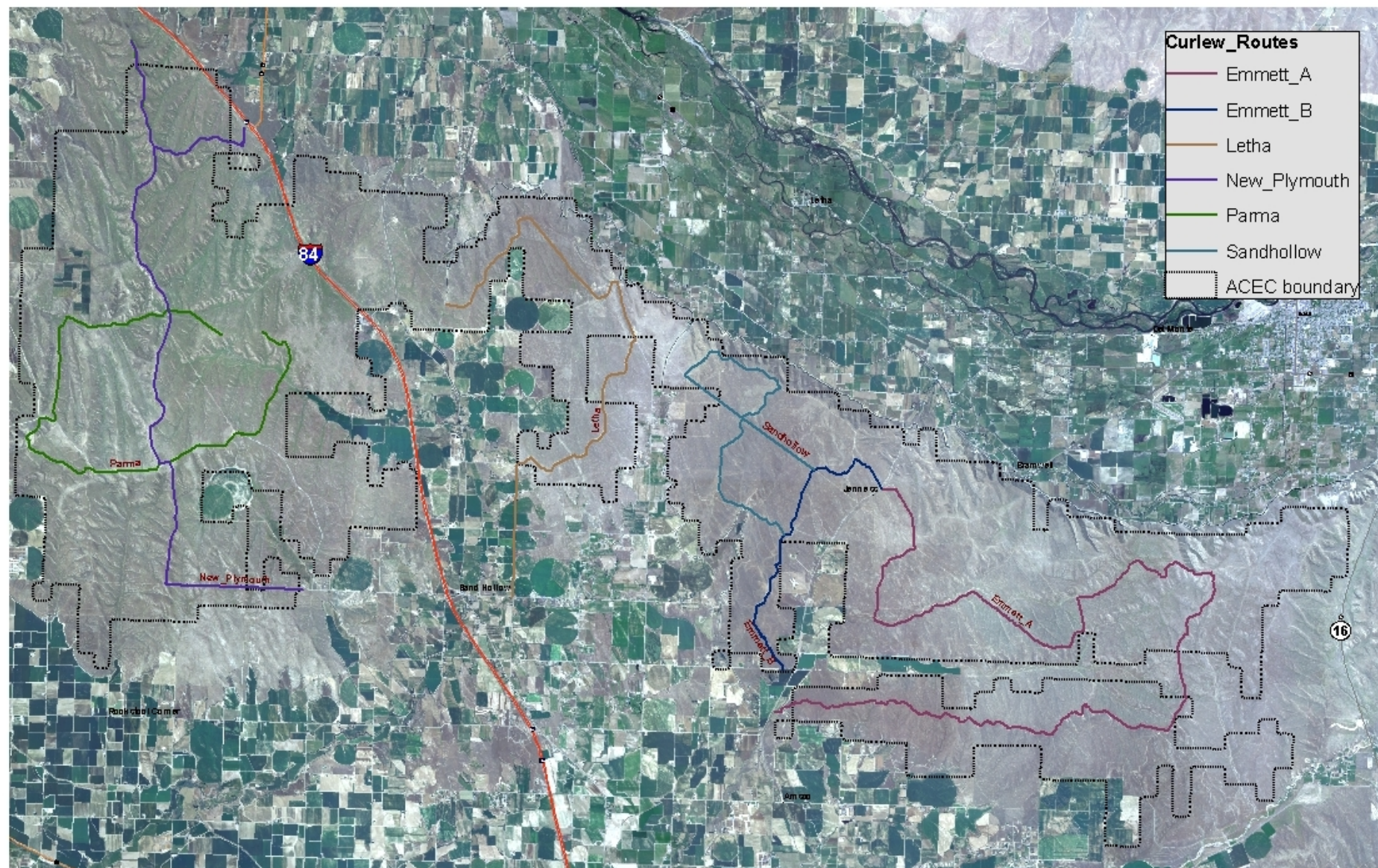
Long-billed Curlew Surveys

Curlews were surveyed following the Long-billed Curlew Rangewide Survey and Monitoring Guidelines (Jones et al. 2003). Within the ACEC, 'off-road' (2-track) survey routes (Fig. 2) were delineated and surveyed, where a team of 2 observers stopped at previously-designated points (spaced 800 m apart), and recorded all curlews seen or heard within 5 minutes.

Surveys took place during the month of April, started ½ hour before sunrise and continued until mid-afternoon, depending on length of the survey route. This survey method employs a double-observer approach, where the primary observer is responsible for detecting curlews by sight or sound, determining by laser rangefinder the distance band (0–400 m, 400–800 m, >800 m) in which the curlew occurs, and communicating this information to the secondary observer. The secondary observer is responsible for recording the information, including the 1-minute time interval in which each curlew was detected, and recording other curlews that were not detected by the primary observer. This method was repeated along 4 newly delineated routes at Grays Lake NWR.

To assess detection rates, we also conducted ground-truthing surveys along several designated routes. Observers randomly selected a direction from a survey point and walked out approximately 400m. They would then circle around the point at the 400m distance, while concentrating their observations towards the inner circle.

Figure 2. Long-billed Curlew survey routes in the ACEC, southwest Idaho



RESULTS and DISCUSSION

Breeding Season Aquatic Bird Surveys

Seventy-nine breeding season aquatic bird surveys were conducted at 21 wetland sites. Of these, 19 sites were surveyed at least 3 times, 5 sites were surveyed 4 times, and 2 sites (Camas NWR and Market Lake WMA) were surveyed 7 times. Statewide, 72 aquatic bird species were detected (Table 3) and over 57,000 bird detections were recorded (Table 4). Waterbirds were the most abundant species group observed, representing 50.2% of detections, while waterfowl and shorebirds accounted for 45.7% and 4.1% of detections, respectively. Waterbirds and waterfowl were most abundant in May, while shorebirds were most abundant in June. Number of aquatic bird species detected per site ranged from 13 (Denton Slough) to 49 (Camas NWR), with a median of 31 (Boundary Creek WMA, Camas Prairie Centennial Marsh WMA, Table 3, Appendix A).

Secretive Marsh Bird Surveys

In 2007, 114 marsh bird surveys were conducted at 13 sites throughout the state. All 13 sites were surveyed during all 3 survey periods. For the first time, we were able to survey all 13 sites during both the morning and evening of each period.

Sora (SORA), Virginia rail (VIRA), pied-billed grebe (PBGR), and Wilson's snipe (WISN) were detected at all but 2 sites (Mud Lake WMA and Carey Lake) surveyed, and American bittern (AMBI) was detected at 8 sites (Table 5). There were 2,845 target bird detections (SORA, 586; VIRA, 483; AMBI, 417; PBGR, 895; WISN, 464), although some may have been repeated detections of the same individuals.

Unlike 2006, where evening surveys appeared to be generally more productive, both morning and evening surveys in 2007 were similarly productive (Table 5). The survey period with the greatest number of birds per point varied among regions, although all tended to have lower detection rates near the end of the season (Table 6). This is exactly opposite of what was seen in 2006, when Idaho experienced a cold, wet spring. In 2007, weather was relatively warm, and marshes tended to start drying early in the season. Of particular note is that not a single pied-billed grebe was detected at Carey Lake in 2007, yet it was the most abundant marsh bird species in 2006, averaging 3.3 birds per point per survey. This reflects the exceptionally low water levels observed by the survey crew at this location in 2007.

All secondary species were detected during the marsh bird surveys (Table 7). American coots (*Fulica americana*), marsh wrens (*Cistothorus palustris*), and red-winged blackbirds (*Agelaius phoeniceus*) were recorded at all sites, although not at every point within each site. The most commonly detected species were common yellowthroats (*Geothlypis trichas*) and marsh wrens, which were detected at 85% and 84% of points, respectively. The least common species were willow flycatchers (*Empidonax traillii*) and yellow-breasted chats (*Icteria virens*), which were detected at only 1% and .04% of points, respectively.

Table 3. Number of species detected at each site during monthly aquatic bird surveys, Spring/Summer 2007.

Site Name	Waterfowl				Shorebirds				Waterbirds				Total				Overall
	April	May	June	July	April	May	June	July	April	May	June	July	April	May	June	July	
Panhandle																	
Boundary Creek WMA	NS	15	15	9	NS	1	2	4	NS	6	6	8	NS	22	23	21	31
Coeur d'Alene WMA	NS	15	13	9	NS	3	1	2	NS	13	9	10	NS	31	23	21	30
Hayden Lake	NS	8	4	4	NS	2	2	0	NS	5	3	4	NS	15	9	8	16
Mann Lake	19	NS	NS	4	6	NS	NS	7	3	NS	NS	6	28	NS	NS	17	36
McArthur Lake	NS	11	13	12	NS	0	2	1	NS	7	6	6	NS	18	21	19	26
Morton Slough	NS	11	6	2	NS	1	1	1	NS	5	4	4	NS	17	11	7	18
Denton Slough	NS	7	3	2	NS	2	1	1	NS	3	2	2	NS	12	6	5	13
Fisherman Island/Oden Bay	NS	12	3	3	NS	3	1	1	NS	10	4	4	NS	25	8	8	26
Southwest/Magic Valley																	
Black's Creek Reservoir	NS	6	9	3	NS	7	4	1	NS	4	3	3	NS	17	16	7	21
Carey Lake WMA	NS	12	9	7	NS	8	5	7	NS	12	11	11	NS	32	25	25	39
C.P. Centennial Marsh WMA	NS	15	9	7	NS	7	3	3	NS	7	8	5	NS	29	20	15	31
Fort Boise WMA	NS	9	8	6	NS	2	2	6	NS	7	9	9	NS	18	19	21	27
Mormon Reservoir	NS	12	13	11	NS	5	6	4	NS	16	15	11	NS	33	34	26	34
Silver Creek Preserve	13	7	8	4	3	3	2	0	6	7	9	7	22	17	19	11	24
Southeast/Upper Snake																	
Bear Lake NWR	NS	15	9	13	NS	4	6	7	NS	16	20	12	NS	35	35	32	46
Camas NWR	17	20	17	17	6	9	7	9	12	14	13	11	35	43	37	37	49
Henry's Lake	NS	21	13	15	NS	7	2	1	NS	22	17	14	NS	50	32	30	46
Market Lake WMA	16	17	18	13	5	5	7	4	15	18	21	17	36	40	46	34	47
Mesa Marsh	NS	15	NS	NS	NS	1	NS	NS	NS	7	NS	NS	NS	23	NS	NS	24
Mud Lake WMA	NS	17	14	11	NS	5	7	2	NS	17	14	17	NS	39	35	30	46
Sterling WMA	19	14	14	10	3	5	5	4	5	9	10	8	27	28	29	22	36
Statewide	23	26	22	20	11	12	11	12	19	29	26	23	53	67	59	55	72

NS = not surveyed

Table 4. Number of birds detected during monthly aquatic bird surveys, Spring/Summer 2007.

Site Name	Waterfowl				Shorebirds				Waterbirds				Total			
	April	May	June	July	April	May	June	July	April	May	June	July	April	May	June	July
Panhandle/Clearwater																
Boundary Creek WMA	NS	277	342	474	NS	1	4	69	NS	326	174	62	NS	604	520	605
Coeur d'Alene WMA	NS	372	344	279	NS	17	1	8	NS	239	223	220	NS	628	568	507
Denton Slough	NS	89	112	89	NS	1	1	5	NS	53	48	16	NS	143	161	110
Hayden Lake	NS	70	78	120	NS	3	7	0	NS	36	31	101	NS	109	116	221
Mann Lake	568	NS	NS	1,066	46	NS	NS	76	392	NS	NS	15	1,006	NS	NS	1,157
McArthur Lake	NS	181	144	147	NS	2	3	1	NS	45	49	44	NS	228	196	192
Morton Slough	NS	65	49	113	NS	3	2	1	NS	30	13	18	NS	98	64	132
Oden Bay/Fisherman Island	NS	136	54	40	NS	1	4	2	NS	50	6	26	NS	187	64	68
Southwest/Magic Valley																
C.P. Centennial Marsh WMA	NS	353	25	171	NS	156	45	44	NS	106	25	26	NS	615	95	241
Black's Creek Reservoir	NS	29	67	13	NS	23	38	1	NS	44	8	4	NS	96	113	18
Carey Lake WMA	NS	294	167	270	NS	89	32	46	NS	481	131	105	NS	864	330	421
Fort Boise WMA	NS	494	305	327	NS	7	7	5	NS	333	247	252	NS	834	559	584
Mormon Reservoir	NS	246	731	703	NS	55	69	29	NS	459	2,210	2,372	NS	760	3,010	3,104
Silver Creek Preserve	133	75	76	60	10	11	12	0	23	93	245	23	166	179	333	83
Southeast/Upper Snake																
Bear Lake NWR	NS	7	4	4	NS	4	3	3	NS	5	15	4	NS	16	22	11
Camas NWR	1,920	3,375	2,863	3,156	87	254	397	190	976	1,064	1,140	1,574	2,983	4,693	4,400	4,920
Henry's Lake	NS	1,249	407	627	NS	24	9	11	NS	2,638	343	540	NS	3,911	759	1,178
Mesa Marsh	NS	358	NS	NS	NS	2	NS	NS	NS	317	NS	NS	NS	677	NS	NS
Mud Lake WMA	NS	816	311	503	NS	38	263	5	NS	5,637	1,806	3,019	NS	6,491	2,380	3,527
Sterling WMA	520	166	176	50	17	59	59	17	81	138	142	50	618	363	377	117
Statewide	3,141	8,652	6,255	8,212	160	750	956	513	1,472	12,094	6,856	8,471	4,773	21,496	14,067	17,196

NS = not surveyed

Table 5. Bird detections during marsh bird playback surveys, Spring 2007.

Site Name	Morning Survey			Evening Survey			Species Detected									
	No. Points	No. Surveys	No. birds/ survey/ point	No. Points	No. Surveys	No. birds/ survey/ point	<u>SORA</u>		<u>VIRA</u>		<u>AMBI</u>		<u>PBGR</u>		<u>WISN</u>	
							AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Panhandle																
Boundary Creek WMA	11	3	3.48	21	3	3.05	√	√	√	√	-	-	√	√	√	√
Coeur d'Alene WMA	21	3	3.25	5	3	2.29	√	√	√	√	-	√	√	√	√	√
McArthur Lake WMA	9	3	4.5	9	3	4.5	√	√	√	√	-	√	√	√	√	√
Westmond Lake	5	3	7.47	5	3	7	√	√	√	√	-	-	√	√	√	√
Southwest/Magic Valley																
Billingsley Creek WMA	8	3	1.59	8	3	3	√	√	√	√	-	-	√	√		√
C.P. Centennial Marsh WMA	13	3	2.5	13	3	3.3	√	√	√	√	√	√	√	√	√	√
Carey Lake WMA	7	3	2.38	7	3	2.89	√	√	√	√	-	-	-	-	√	√
Silver Creek Preserve	7	3	2.69	7	3	2	√	√	√	√	-	-	√	√	√	√
Southeast/Upper Snake																
Bear Lake NWR	66	3	2.84	66	3	3.05	√	√	√	√	√	√	√	√	√	√
Camas NWR	14	3	1.84	14	3	1.84	√	√	√	√	√	√	√	√	√	-
Market Lake WMA	14	3	2.31	14	3	2.93	√	-	√	√	√	√	√	√	-	√
Mud Lake WMA	14	3	3.87	14	3	3.81	√	√	√	√	√	√	√	√	-	-
Sterling WMA	9	3	2.56	9	3	3.11	√	√	√	√	-	√	√	√	√	√

Table 6. Marsh birds detected per survey point in Spring 2007.

Survey Period*	Birds detected per point per survey					
May 1 - May 18	SORA	VIRA	AMBI	PBGR	WISN	Total
Panhandle	1.95	0.39	0.00	1.67	0.88	2.55
Southwest/Magic Valley	0.66	0.74	0.03	0.30	1.04	1.36
Southeast/Upper Snake	0.39	0.41	0.54	1.06	0.18	1.77
May 15 - May 31*						
Panhandle	1.39	0.59	0.00	1.63	0.94	2.57
Southwest/Magic Valley	0.59	0.89	0.00	0.28	0.77	1.05
Southeast/Upper Snake	0.69	0.63	0.55	1.07	0.18	1.80
June 5 - June 21						
Panhandle	1.24	0.79	0.06	0.88	0.89	1.83
Southwest/Magic Valley	0.27	1.00	0.00	0.34	0.70	1.05
Southeast/Upper Snake	0.43	0.57	0.38	1.08	0.26	1.72

*Survey periods 1 and 2 overlap to accommodate high elevation sites (e.g., Bear Lake)

Table 7. Proportion of marsh bird survey points at which secondary marsh birds species were detected, Spring 2007.

Site Name	Secondary Species Detected										
	AMCO	BHCO	COYE	EAGR	MAWR	RWBL	SOSP	WIFL	YBCH	YHBL	YWAR
Panhandle											
Boundary Creek WMA	0.90	0.05	1.00	-	0.52	1.00	1.00	0.14	-	1.00	0.57
Coeur d'Alene WMA	0.62	0.04	0.88	-	0.88	0.96	0.96	0.04	-	0.65	0.62
McArthur Lake WMA	1.00	-	1.00	-	1.00	1.00	1.00	0.33	-	1.00	0.56
Westmond Lake	1.00	0.20	1.00	-	0.20	1.00	0.80	0.20	-	0.80	-
Southwest/Magic Valley											
Billingsley Creek WMA	0.63	0.13	1.00	-	1.00	1.00	1.00	-	-	-	-
C.P. Centennial Marsh WMA	0.23	-	-	-	0.08	1.00	-	-	-	0.92	-
Carey Lake WMA	0.71	-	0.57	-	1.00	0.86	0.43	0.29	-	1.00	0.29
Silver Creek Preserve	0.29	0.29	0.86	-	0.71	1.00	1.00	1.00	0.14	0.43	1.00
Southeast/Upper Snake											
Bear Lake NWR	0.73	0.32	0.98	0.09	1.00	0.59	0.82	0.09	-	0.23	0.09
Camas NWR	1.00	0.57	0.93	0.79	0.93	0.29	1.00	-	-	1.00	0.14
Market Lake WMA	1.00	0.64	0.86	0.29	1.00	0.64	0.64	-	-	1.00	0.07
Mud Lake WMA	0.79	0.43	0.43	0.07	0.79	0.71	0.71	-	-	0.79	0.64
Sterling WMA	1.00	0.67	1.00	-	1.00	0.33	0.56	-	-	1.00	0.11

Colonial Waterbird Counts

Both American white pelican and all 6 known Caspian tern colonies were surveyed in 2007 (Table 8). In addition to pelicans and terns, double-crested cormorants (*Phalacrocorax auritus*) were counted at each colony (with the exception of Island Park Reservoir), and all species nesting at Minidoka were counted. Black-crowned night-herons (*Nycticorax nycticorax*) were observed for the first time at Mormon Reservoir, and were therefore recorded. Pelican numbers continued to increase in 2007 at both colonies. Similar to 2006, Minidoka NWR was the largest pelican colony in Idaho.

Water levels were slightly lower in 2007 than in 2006, but this did not appear to impact nesting of the species surveyed. Even though the Magic Reservoir colony was land-locked by June, most young Caspian terns had hatched and appeared to be doing well. However, gulls were noticeably absent from one of the three Magic Reservoir nesting islands. As this species was not surveyed in 2007, it is not known whether there was an overall decrease in nesting at this location.

Western grebes nesting at Denton Slough (Pend Oreille WMA) and Coeur d'Alene WMA were surveyed 6 times through the months of June and July (Table 9). These two colonies have experienced frequent failure, for unknown reasons, for the past several years. Even though 50-75 grebes have been observed initiating nesting in Denton Slough for at least the past 7 years, only a handful of nests have been successful. After failing in the slough, the colony generally moves to a nearby driftyard by early July. In 2007, a

Table 8. Number of nests detected at island colonial waterbird sites in 2007.

Site Name	Species	No. Nests
Southwest/Magic Valley		
Magic Reservoir	Caspian Tern	42
	Double-crested Cormorant	4
Mormon Reservoir	Caspian Tern	22
	Double-crested Cormorant	80
	Black-crowned Night-heron*	3
Southeast/Upper Snake		
Bear Lake NWR	Caspian Tern	0
	Double-crested Cormorant	56
Blackfoot Reservoir	American White Pelican	1709
	Double-crested Cormorant	610
	Caspian Tern	37
Island Park Reservoir	Caspian Tern	20
Minidoka NWR	American White Pelican	1953
	Caspian Tern	7
	Double-crested Cormorant	406
	California Gull	159
	Black-crowned Night-heron	47
	Cattle Egret	2
	Snowy Egret	20

*New species at this location in 2007

Table 9. Number of Western grebe adults and nests detected during marsh colony surveys at Denton Slough and Coeur d'Alene WMA in 2007.

Date	Denton Slough (adults/nests)		Coeur d'Alene WMA (adults/nests)		
	Slough	Driftyard	Medicine Lake	Cave Lake #1	Cave Lake #2
5/29/2007	52/0	0/0	-	-	-
6/1/2007	-	-	32/9	-	-
6/11/2007	47/0	0/0	-	-	-
6/14/2007	-	-	4/0	68/32	0/0
6/17/2007	18/0	0/0	-	-	-
6/20/2007	-	-	0/0	98/48	10/3
6/28/2007	-	-	0/0	67/50	15/4
7/2/2007	0/0	65/7	-	-	-
7/9/2007	0/0	55/16	-	-	-
7/12/2007	-	-	0/0	10/2	28/6
7/17/2007	0/0	38/11	-	-	-
7/19/2007	-	-	0/0	2/0	39/16
7/21/2007	0/0	38/8	-	-	-
7/23/2007	-	-	0/0	0/0	14/16

similar pattern was observed. It is speculated that fluctuating water levels and/or boat traffic may be contributing to this problem. Failures at the Coeur d'Alene colonies in Cave and Medicine Lakes also may be potentially attributed to disturbance, but no direct evidence of this has been documented. Similar to Denton Slough, grebes initiate nesting each year, but appear to fail some time in July. However, this colony does not appear to move to a new location after failure, but will continue to attempt renesting at the same location.

Six heron rookeries in southwest Idaho were visited once during late March or April (Table 10). Four of the 5 rookeries were previously undocumented nesting locations. One of these locations (Payette River Island Colony) was a new site initiated only 4 years ago, that represents the largest documented great egret colony in the state.

Table 10. Number of nests detected at rookery sites in 2007.

Site Name	Species	No. Nests
Boise River	Great Blue Heron	17
Letha	Great Blue Heron	3
	Double-crested Cormorant	24
Payette River Island	Great Blue Heron	8
	Black-crowned Night-heron	24
	Snowy Egret	1
	Great Egret	6
New Letha	Great Blue Heron	4
Big Willow Creek	Great Blue Heron	19
Warm Spring Creek	Great Blue Heron	10

Fall/Migration Aquatic Bird Surveys

Twenty-five fall/migration aquatic bird surveys were conducted at 4 wetland sites: Mann Lake, Market Lake WMA (inventory only), Silver Creek Preserve, and Sterling WMA. Mann Lake was surveyed weekly (total of 14 surveys), Market Lake was surveyed bi-weekly (total of 5 surveys) while Silver Creek and Sterling were surveyed monthly (3 surveys each). Overall, 66 aquatic bird species were detected (Table 11) and 10,854 bird detections were recorded (Table 12). Of the 66 species detected, 25 (38%) were waterbirds, 22 (33%) were waterfowl, and 19 (29%) were shorebirds. Although waterfowl were the most abundant (73%) species group, shorebirds represented a slightly higher percentage of species (29% vs. 19%) and detections (6.3% vs. 4.1%) than they did during the breeding season. Canada geese (*Branta canadensis*), American coots (*Fulica americana*), and mallards (*Anas platyrhynchos*) were the most prevalent species detected in the fall (Table 13).

Mann Lake was surveyed each Saturday from the first week in August through the end of October. Of the more than 11,000 bird detections recorded during the fall/migration surveys, 8,897 birds were recorded at Mann Lake (Table 14). This site was designated as an IBA for its importance to migratory shorebirds. However, unlike 2006, when shorebirds were the most prevalent species, there were more waterfowl species (39%) detected in 2007 than shorebirds (35%) or waterbirds (26%).

Table 11. Number of species detected at each site during monthly waterbird surveys, Fall 2007.

Site Name	Waterfowl			Shorebirds			Waterbirds			Total			Overall
	Aug	Sept	Oct	Aug	Sept	Oct	Aug	Sept	Oct	Aug	Sept	Oct	
Mann Lake	10	12	17	17	13	7	8	11	11	35	36	35	51
Market Lake WMA	12	15	6	7	3	0	18	13	6	37	31	12	44
Silver Creek Preserve	1	4	5	0	0	0	6	5	5	7	9	10	14
Sterling WMA	7	11	3	1	1	0	7	3	2	15	15	5	21
Statewide	14	17	20	17	14	7	21	18	14	52	49	41	66

Table 12. Number of birds detected during monthly waterbird surveys, Fall 2007.

Site Name	Waterfowl			Shorebirds			Waterbirds			Total		
	Aug	Sept	Oct	Aug	Sept	Oct	Aug	Sept	Oct	Aug	Sept	Oct
Mann Lake (Avg)*	669.8	556.8	309.2	58.3	29.8	54.4	17.3	125.4	105.4	745.4	712	469
Mann Lake (Total)	2679	2784	1546	233	149	272	69	627	527	2981	3560	2345
Silver Creek Preserve	33	238	85	13	0	0	15	41	39	61	279	124
Sterling WMA	119	645	36	15	1	0	176	285	506	310	931	542
Statewide	2831	3667	1667	261	150	272	260	953	1072	3352	4770	3011

*Mann Lake was surveyed multiple times per month; count data were averaged for this row

Table 13. Monthly aquatic bird survey data collected in Idaho, Fall 2007.

Species	August				September				October		
	Mann Lake*	Market Lake WMA**	Silver Creek Preserve	Sterling WMA	Mann Lake	Market Lake WMA	Silver Creek Preserve	Sterling WMA	Mann Lake	Market Lake WMA	Silver Creek Preserve
American Avocet***	-	-	-	-	-	X	-	-	-	-	-
American Bittern	-	-	-	-	-	X	-	-	-	-	-
American Coot	10.3	X	2	132	96.4	X	-	280	48.4	X	31
American White Pelican	-	X	-	-	-	X	-	-	-	-	-
American Wigeon	0.25	-	-	1	5.8	-	-	9	29.2	-	42
Baird's Sandpiper	7.5	-	-	-	1.4	-	-	-	-	-	-
Barrow's Goldeneye	-	-	-	-	-	-	-	-	1	-	-
Black Tern	-	X	-	-	-	-	-	-	-	-	-
Black-bellied Plover	0.5	-	-	-	1.2	-	-	-	0.8	-	-
Black-crowned Night-heron	-	X	-	-	-	X	-	-	-	-	-
Black-necked Stilt	1	-	-	-	-	-	-	-	-	-	-
Blue-winged Teal	0.5	X	-	5	4.4	X	-	9	-	-	-
Bonaparte's Gull	-	-	-	-	-	-	-	-	1.8	-	-
Bufflehead	-	-	-	-	-	X	-	-	35	-	-
California Gull	0.75	-	-	-	11.8	-	-	-	0.4	-	-
Canada Goose	523	X	-	1	352	X	-	30	86.8	X	-
Canvasback	-	-	-	-	-	X	-	-	0.8	-	-
Cinnamon Teal	-	X	-	-	-	X	-	28	-	-	-
Clark's Grebe	-	X	-	-	-	-	-	-	-	-	-
Common Merganser	-	-	-	-	6.8	-	-	-	23	-	-
Common Tern	-	-	-	-	0.2	-	-	-	-	-	-
Double-crested Cormorant	0.25	X	-	-	1.8	X	-	-	5	X	-
Dunlin	-	-	-	-	-	-	-	-	0.8	-	-
Eared Grebe	-	X	-	-	2.8	X	-	3	1.4	X	-
Forster's Tern	-	X	-	-	-	-	-	-	-	-	-
Franklin's Gull	-	X	-	-	-	-	-	-	-	-	-
Gadwall	-	X	-	12	-	X	-	27	-	-	3
Great Blue Heron	2.25	X	1	1	2.4	X	-	-	2	-	1
Great Egret	0.5	X	-	2	-	X	-	-	-	-	-
Greater White-fronted Goose	-	-	-	-	-	-	-	-	14.8	-	-
Greater Yellowlegs	2.25	-	-	-	4.2	-	-	1	2	-	-
Green-winged Teal	36	X	-	-	24.8	X	-	5	17.6	-	3
Hooded Merganser	0.75	-	-	-	-	-	-	-	1.2	-	-
Horned Grebe	0.5	-	-	-	2.6	X	-	-	2	X	-
Killdeer	17	-	-	-	7.8	X	-	-	24	-	-

Species	August				September				October		
	Mann Lake*	Market Lake WMA**	Silver Creek Preserve	Sterling WMA	Mann Lake	Market Lake WMA	Silver Creek Preserve	Sterling WMA	Mann Lake	Market Lake WMA	Silver Creek Preserve
Least Sandpiper	1.5	X	-	-	1	-	-	-	-	-	-
Lesser Scaup	-	-	-	-	0.4	X	-	5	6	-	-
Lesser Yellowlegs	2.25	X	-	-	0.4	-	-	-	1	-	-
Long-billed Dowitcher	2.75	-	-	15	5.8	-	-	-	22.4	-	-
Mallard	23.5	X	31	41	114	X	-	390	22.2	X	33
Northern Pintail	14.3	X	-	-	5.6	X	-	1	35.6	X	-
Northern Shoveler	69.8	X	-	4	15.2	X	-	8	15.8	X	-
Pectoral Sandpiper	0.25	-	-	-	1.8	-	-	-	3.4	-	-
Pied-billed Grebe	0.5	X	2	3	0.8	X	-	-	0.8	X	1
Redhead	1.25	X	-	-	0.6	X	-	-	0.6	X	-
Red-necked Grebe	-	-	-	-	0.4	-	-	-	0.4	-	-
Red-necked Phalarope	0.5	-	-	-	-	-	-	-	-	-	-
Ring-billed Gull	2.25	X	-	-	1.2	-	-	-	5	-	-
Ring-necked Duck	-	X	-	-	7.6	X	-	-	3.2	-	4
Ruddy Duck	0.25	X	-	8	19.2	X	-	9	6.2	X	-
Sandhill Crane	-	X	4	6	-	-	-	2	-	-	-
Semipalmated Plover	0.25	-	-	-	-	-	-	-	-	-	-
Semipalmated Sandpiper	1	X	-	-	0.4	-	-	-	-	-	-
Snow Goose	-	-	-	-	-	-	-	-	0.8	-	-
Snowy Egret	-	X	-	6	-	X	-	-	-	-	-
Solitary Sandpiper	0.75	X	-	-	0.4	-	-	-	-	-	-
Sora	-	X	3	-	-	-	-	-	-	-	1
Spotted Sandpiper	1.5	X	5	-	0.4	X	-	-	-	-	-
Trumpeter Swan	-	X	-	-	-	X	-	-	0.2	-	-
Tundra Swan	-	-	-	-	-	-	-	-	3.2	-	-
Unclassified Duck	-	X	2	26	-	X	-	98	-	X	-
Unclassified Sandpiper	-	X	-	-	-	X	-	-	-	-	-
Unclassified Teal	-	X	-	21	-	X	-	26	-	-	-
Virginia Rail	-	-	3	-	-	-	-	-	-	-	5
Western Grebe	-	X	-	-	5	X	-	-	38.2	X	-
Western Sandpiper	18	-	-	-	4	-	-	-	-	-	-
White-faced Ibis	-	X	-	26	-	X	-	-	-	-	-
Wilson's Phalarope	1	X	-	-	-	-	-	-	-	-	-
Wilson's Snipe	0.25	X	8	-	1	-	-	-	-	-	-

*Mann Lake was visited multiple times per month; counts were averaged for this table

**Market Lake surveys were inventory surveys; 'X' indicates that a species was present

***Scientific names for all aquatic birds can be found in Appendix B

Table 14. Weekly aquatic bird data collected at Mann Lake, Fall 2007.

Species	8/4/2007	8/11/2007	8/18/2007	8/25/2007	9/1/2007	9/8/2007	9/15/2007	9/22/2007	9/29/2007	10/13/2007	10/6/2007	10/20/2007	10/25/2007	10/27/2007
Pied-billed Grebe	1	-	1	-	-	-	1	1	2	1	3	-	-	-
Horned Grebe	-	-	2	-	1	2	6	3	1	2	2	3	3	-
Red-necked Grebe	-	-	-	-	-	-	-	1	1	1	1	-	-	-
Eared Grebe	-	-	-	-	-	-	14	-	-	1	3	2	-	1
Western Grebe	-	-	-	-	-	-	1	6	18	42	75	36	26	12
Double-crested Cormorant	-	1	-	-	-	5	-	2	2	1	1	1	-	22
Great Blue Heron	2	2	1	4	2	3	3	2	2	1	3	3	1	2
Great Egret	-	1	1	-	-	-	-	-	-	-	-	-	-	-
Tundra Swan	-	-	-	-	-	-	-	-	-	-	-	-	-	16
Trumpeter Swan	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Greater White-fronted Goose	-	-	-	-	-	-	-	-	-	27	29	15	2	1
Snow Goose	-	-	-	-	-	-	-	-	-	-	-	4	-	-
Canada Goose	388	580	675	450	442	320	420	310	270	38	130	165	6	95
Green-winged Teal	6	72	46	20	18	-	42	52	12	8	4	-	44	32
Mallard	26	18	28	22	170	150	50	120	80	5	14	29	3	60
Northern Pintail	3	35	16	3	6	14	1	7	-	26	35	20	7	90
Blue-winged Teal	-	-	-	2	-	2	20	-	-	-	-	-	-	-
Northern Shoveler	11	240	18	10	16	50	-	3	7	2	-	22	-	55
American Wigeon	-	-	-	1	2	-	-	2	25	18	42	38	6	42
Canvasback	-	-	-	-	-	-	-	-	-	-	4	-	-	-
Redhead	-	5	-	-	-	-	-	3	-	-	-	-	3	-
Ring-necked Duck	-	-	-	-	-	-	-	20	18	-	-	12	-	4
Lesser Scaup	-	-	-	-	-	-	-	2	-	5	2	21	-	2
Barrow's Goldeneye	-	-	-	-	-	-	-	-	-	-	-	-	-	5
Bufflehead	-	-	-	-	-	-	-	-	-	5	-	2	38	130
Hooded Merganser	2	1	-	-	-	-	-	-	-	-	-	-	-	6
Common Merganser	-	-	-	-	-	4	4	4	22	15	41	14	15	30
Ruddy Duck	-	-	1	-	-	-	75	7	14	12	10	3	5	1
Osprey	2	1	1	1	2	1	1	-	-	-	1	-	-	-
Bald Eagle	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Northern Harrier	2	1	-	1	2	1	2	-	2	2	2	2	2	2
American Coot	8	11	8	14	4	96	160	170	52	38	60	48	36	60
Black-bellied Plover	-	1	1	-	-	-	-	-	6	2	2	-	-	-
American Golden-plover	-	-	-	-	-	-	2	-	1	-	-	-	1	-

Species	8/4/2007	8/11/2007	8/18/2007	8/25/2007	9/1/2007	9/8/2007	9/15/2007	9/22/2007	9/29/2007	10/13/2007	10/6/2007	10/20/2007	10/25/2007	10/27/2007
American Golden-plover	-	-	-	-	-	-	2	-	1	-	-	-	1	-
Semipalmated Plover	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Killdeer	14	24	16	14	9	8	8	5	9	7	5	14	52	42
Black-necked Stilt	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Greater Yellowlegs	3	2	3	1	1	3	7	3	7	3	3	2	1	1
Lesser Yellowlegs	4	4	-	1	1	-	1	-	-	1	-	-	2	2
Solitary Sandpiper	-	1	1	1	1	1	-	-	-	-	-	-	-	-
Spotted Sandpiper	3	1	2	-	2	-	-	-	-	-	-	-	-	-
Semipalmated Sandpiper	1	1	1	1	1	-	1	-	-	-	-	-	-	-
Western Sandpiper	4	44	14	10	16	4	-	-	-	-	-	-	-	-
Least Sandpiper	3	1	1	1	2	3	-	-	-	-	-	-	-	-
Baird's Sandpiper	1	21	7	1	4	1	2	-	-	-	-	-	-	-
Pectoral Sandpiper	-	-	1	-	-	-	-	6	3	3	14	-	-	-
Dunlin	-	-	-	-	-	-	-	-	-	-	-	1	2	1
Long-billed Dowitcher	6	-	5	-	-	5	2	3	19	36	44	12	10	10
Wilson's Snipe	1	-	-	-	-	-	1	-	4	-	-	-	-	-
Wilson's Phalarope	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Red-necked Phalarope	-	-	-	2	-	-	-	-	-	-	-	-	-	-
Bonaparte's Gull	-	-	-	-	-	-	-	-	-	1	-	-	-	8
Ring-billed Gull	3	3	2	1	-	2	1	-	3	2	2	1	2	18
California Gull	1	2	-	-	-	-	-	58	1	1	1	-	-	-
Sabine's Gull	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Common Tern	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Belted Kingfisher	1	-	1	-	-	1	-	-	-	-	1	-	-	-

Winter Aquatic Bird Surveys

Twenty-three winter aquatic bird surveys were conducted at 5 wetland sites: Boise River IBA, Mann Lake, Silver Creek Preserve, Snake/Clearwater Rivers Confluence, and Sterling WMA. Silver Creek was surveyed once each month (total of 5 surveys), Snake/Clearwater Rivers Confluence and Sterling WMA were surveyed 4 times, and Mann Lake was surveyed 3 times. The remaining 7 surveys were conducted along the Boise River. Because the Boise River IBA is over 20 miles long, and must be surveyed on foot, surveys for this site are divided into several sections that can each be completed in 1 day. Three sections were surveyed during Winter 2006/2007, with 1 section being surveyed each of the 5 months, and the remaining 2 being surveyed once in January. Overall, 46 aquatic bird species were detected and over 45,000 bird detections were recorded (Table 15). Waterfowl were the most abundant (96.6%) group detected during the winter. Shorebirds were observed only occasionally, and represented only 0.1% of

detections, while waterbirds represented 3.3%. Canada geese, mallards, and common goldeneye (*Bucephala clangula*) were the most prevalent species detected throughout the winter (Table 16).

Table 15. Number of species and birds detected during monthly aquatic bird surveys, Winter 2006/2007.

Month	Waterfowl		Shorebirds		Waterbirds		Total	
	# Birds	# Species	# Birds	# Species	# Birds	# Species	# Birds	# Species
November	7749	23	13	2	545	14	8307	39
December	2063	14	0	0	132	6	2195	20
January	11808	19	4	1	502	12	12314	32
February	10707	19	0	0	280	8	10987	27
March	11292	20	18	2	21	5	11331	27
Winter Total	43619	26	35	4	1480	16	45134	46

Table 16. Monthly aquatic bird survey data collected in Idaho, Winter 2006/2007.

Species	November				December			January					February					March		
	Boise River	Mann Lake	Silver Creek	Snake/Clearwater	Boise River	Silver Creek	Sterling WMA	Boise River	Mann Lake	Silver Creek	Snake/Clearwater	Sterling WMA	Boise River	Mann Lake	Silver Creek	Snake/Clearwater	Sterling WMA	Boise River	Silver Creek	Sterling WMA
American Coot	2	46	24	116	-	7	27	-	-	-	135	3	-	-	1	120	-	-	7	-
American Wigeon	515	4	130	198	515	51	-	96	-	24	234	5	433	42	3	249	8	1	1	177
Barrow's Goldeneye	-	15	-	896	-	1	-	8	-	-	2011	-	-	-	31	286	-	-	-	-
Black-crowned Night-heron	-	-	-	5	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
Bufflehead	-	32	-	294	1	6	-	1	2	-	967	1	-	2	3	1000	5	-	-	25
Cackling Goose	-	7	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
California Gull	8	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Canada Goose	171	425	30	1238	490	16	-	913	30	90	483	35	623	2	227	508	462	30	42	337
Canvasback	-	-	-	4	-	-	-	-	-	-	4	-	-	-	-	3	-	1	-	-
Cattle Egret	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cinnamon Teal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-
Common Goldeneye	-	-	6	74	35	21	-	19	-	32	1751	-	16	-	2	2104	-	-	6	-
Common Loon	-	-	-	2	-	-	-	-	-	-	3	-	-	-	-	-	-	-	1	-
Common Merganser	11	4	-	4	32	-	-	19	5	1	16	-	6	10	14	15	-	8	46	-
Double-crested							-													
Cormorant	-	27	-	19	-	-	-	-	-	-	51	-	-	-	-	52	-	-	-	-
Dunlin	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-
Eared Grebe	-	-	-	4	-	-	-	-	-	-	2	-	-	-	-	2	-	-	-	-
Eurasian Wigeon	-	-	-	2	-	-	-	-	-	-	2	-	-	1	-	1	-	-	-	1
Gadwall	-	1	22	-	-	8	-	19	-	64	-	32	4	-	48	13	21	-	11	11
Great Blue Heron	3	4	1	5	2	-	-	11	3	2	7	-	3	-	-	36	1	-	-	-
Green-winged Teal	-	8	10	13	-	5	-	-	12	52	12	-	-	9	56	2	-	-	16	27
Herring Gull	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Species	November				December			January					February					March		
	Boise River	Mann Lake	Silver Creek	Snake/Clearwater	Boise River	Silver Creek	Sterling WMA	Boise River	Mann Lake	Silver Creek	Snake/Clearwater	Sterling WMA	Boise River	Mann Lake	Silver Creek	Snake/Clearwater	Sterling WMA	Boise River	Silver Creek	Sterling WMA
Hooded Merganser	4	-	-	22	2	-	-	10	-	-	9	-	5	-	-	1	-	-	1	-
Horned Grebe	-	-	-	5	-	-	-	-	-	-	13	-	-	-	-	13	-	-	-	-
Killdeer	2	8	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	-
Lesser Scaup	-	-	-	5	-	-	-	-	-	-	49	-	1	-	-	24	-	-	5	59
Long-billed Dowitcher	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Long-tailed Duck	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mallard	444	895	445	1499	575	104	13	1107	147	300	1974	2	821	77	62	2953	72	232	41	1539
Northern Pintail	-	-	1	5	-	-	-	-	1	17	5	-	-	6	2	-	43	-	-	2226
Northern Shoveler	-	-	-	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-
Pied-billed Grebe	-	-	3	3	-	2	-	186	-	1	9	-	-	-	-	2	-	-	5	-
Red-breasted Merganser	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
Redhead	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Red-necked Grebe	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Ring-billed Gull	216	-	-	-	90	-	-	68	-	-	-	-	49	-	-	-	-	-	-	-
Ring-necked Duck	-	-	23	20	-	13	-	-	-	47	136	-	-	-	25	125	16	28	57	-
Ruddy Duck	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
Sandhill Crane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-
Snow Goose	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6000
Trumpeter Swan	-	-	17	-	-	68	-	-	-	85	-	-	-	-	-	-	2	-	-	32
Tundra Swan	-	-	-	4	-	2	-	-	-	19	-	-	-	-	4	-	-	-	-	-
Unclassified Duck	-	-	9	-	-	42	-	-	-	9	-	2	-	-	-	-	35	-	5	300
Unclassified Swan	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	7	-	-	-
Unclassified Teal	-	-	-	-	-	10	-	-	-	13	-	-	-	-	-	-	-	-	-	-

Species	November				December			January					February					March		
	Boise River	Mann Lake	Silver Creek	Snake/Clearwater	Boise River	Silver Creek	Sterling WMA	Boise River	Mann Lake	Silver Creek	Snake/Clearwater	Sterling WMA	Boise River	Mann Lake	Silver Creek	Snake/Clearwater	Sterling WMA	Boise River	Silver Creek	Sterling WMA
Virginia Rail	-	-	2	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	1	-
Western Grebe	-	28	-	14	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-
Wilson's Snipe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
Wood Duck	25	-	-	204	53	-	-	39	-	-	889	-	41	-	-	175	-	16	-	-

Long-billed Curlew Surveys

Eighteen curlew surveys were conducted along 8 designated routes in late April (ACEC) and early May (Grays Lake) 2007 (Table 17). Routes on the ACEC were run twice, whereas routes at Grays Lake were run only once. There were 631 curlews detected (2.2 birds/point) during these surveys. The majority (546; 86%) of these detections were on the ACEC routes. On the ACEC, 231 (42%) of the curlews were detected along the Emmett A route, 64 (12%) along Emmett B, 121 (22%) along Sandhollow, 57 (10%) along Letha, 55 (10%) along Parma, and only 18 (3%) along the New Plymouth route. Of the 85 detections at Grays Lake, 32 (38%) of the curlews were detected along the Wayan route, 28 (33%) along Bunkhouse, 19 (22%) along Mann, and 6 (7%) along the West route.

Table 17. Long-billed curlews detected per survey point in Spring 2007.

Route Name	No. Points.	Survey 1	Survey 2
		No. Birds/Point	No. Birds/Point
ACEC			
Emmett A	33	3.6	3.4
Emmett B	9	3.0	4.1
Sandhollow	13	3.9	5.4
Letha	29	0.9	1.1
New Plymouth	23	0.3	0.4
Parma	24	1.0	1.3
Grays Lake			
Bunkhouse	7	4.0	NS
Mann	9	2.1	NS
Wayan	12	2.7	NS
West	3	2.0	NS

NS = not surveyed

Eleven curlew ground-truthing surveys were conducted along 5 survey routes. In general, more birds were detected during ground-truthing surveys, where an hour or more was used to walk the point area, than during the 5-minute standard survey (Table 18). The one exception to this was survey point #4 on the Wayan Route at Gray's Lake NWR, where fewer birds were detected during the ground-truthing survey. This point was on private property, so observers were unable to walk completely around the point.

In the ACEC, it appeared that birds were not being detected during the standard survey as a result of the topography of the area. Birds could be heard but location, distance and behavior could not be determined. During the ground-truthing in the ACEC it was easier to determine pair dynamics, behavior, and location by walking into each of the drainages where birds were being heard. At Gray's Lake NWR, it was assumed that birds would be easier to detect during the surveys since there appeared to be few drainages or hills blocking the view. However, more birds were detected during the ground-truthing survey. Observers noted that birds at Gray's Lake appeared to be further along in the breeding cycle, as 3 nesting females were detected.

This likely affected detection rates during the standard survey, as birds may have no longer been engaging in territorial displays and were thus less likely to be observed.

Table 18. Comparison of standard and ground truthing curlew surveys in Idaho, Spring 2007.

Route Name - Point #	No. Birds 1st Visit	No. Pairs 1st Visit	No. Birds 2nd Visit	No. Pairs 2nd Visit	No. Birds Ground Truth	No. Pairs Ground Truth
Emmett A - 13	6	1	5	1	13	2
Emmett A - 35	8	3	5	0	12	2
Emmett A - 37	7	3	6	2	7	0
Letha - 82	4	1	5	1	5	0
Letha - 88	1	0	0	0	3	0
Sand hollow - 45	6	2	7	0	13	5
Sand hollow - 52	5	2	4	1	7	0
Bunkhouse - 45	3	0	NS	NS	6	1
Bunkhouse - 46	6	2	NS	NS	12	5
Wayan - 4	5	0	NS	NS	3	1
Wayan - 6	6	1	NS	NS	9	3

Idaho Species of Greatest Conservation Need

In Idaho's CWCS, over 200 species have been identified as Species of Greatest Conservation Need (SGCN). Fifty-three SGCN are birds, and 25 of these are aquatic birds. During aquatic bird surveys and marsh bird playback surveys in 2007, 24 of the 25 aquatic bird SGCN were detected. At least 2 SGCN were detected at each of the 25 sites surveyed. Thirty-six percent of sites had 2 - 5 SGCN detected, 28% had 6 - 10 SGCN, and 36% had at least 11 SGCN (Table 19). Sites with the highest number of SGCN tended to be located in the Southeast and Upper Snake Regions, such as Market Lake WMA where 20 SGCN were detected. All 24 SGCN were detected at at least 2 sites. One species (cattle egret) was detected at 2 - 5 sites (4%; 2 sites), 11 (54%) were detected at 6 - 10 sites, and 10 (42%) were detected at more than 11 sites. The only SGCN not detected during surveys in 2007 was the harlequin duck. Given this species' specialized habitat needs and low population size in Idaho, it is not a surprise that they went undetected during these surveys. A separate survey for this species was initiated in 2007.

Table 19. Species of Greatest Conservation Need detected during aquatic bird and secretive marsh bird surveys in Idaho, 2007.

Species	Panhandle	Boundary Creek WMA	Coeur d'Alene WMA	Denton Slough	Fisherman Island/Oden Bay	Hayden Lake	Mann Lake	McArthur Lake	Morton Slough	Snake/Clearwater	Westmond Lake	Southwest/Magic Valley	Billingsley Creek	Black's Creek Reservoir	Boise River	Carey Lake WMA	Centennial Marsh WMA	Fort Boise WMA	Mormon Reservoir	Silver Creek Preserve	Southeast/Upper Snake	Bear Lake NWR	Camas NWR	Henry's Lake	Market Lake WMA	Mesa Marsh	Mud Lake WMA	Sterling WMA
American Avocet					✓		✓							✓		✓	✓	✓	✓			✓	✓	✓	✓		✓	✓
American White Pelican		✓						✓								✓		✓	✓			✓	✓	✓	✓		✓	✓
Black Tern		✓	✓								✓					✓	✓	✓	✓			✓			✓		✓	✓
Black-crowned Night-heron										✓			✓			✓		✓	✓			✓	✓	✓	✓		✓	
Black-necked Stilt							✓							✓		✓	✓	✓	✓			✓	✓	✓	✓		✓	✓
California Gull					✓	✓	✓								✓	✓	✓	✓	✓			✓	✓	✓	✓		✓	
Caspian Tern						✓										✓	✓		✓			✓		✓	✓			
Cattle Egret							✓																				✓	
Clark's Grebe			✓	✓															✓			✓		✓	✓		✓	
Common Loon					✓			✓		✓									✓	✓			✓	✓			✓	✓
Forster's Tern			✓		✓															✓		✓	✓	✓	✓		✓	✓
Franklin's Gull		✓														✓			✓			✓	✓	✓	✓		✓	✓
Great Egret							✓									✓		✓				✓		✓	✓		✓	✓
Hooded Merganser		✓					✓			✓					✓	✓				✓							✓	✓
Lesser Scaup							✓			✓					✓		✓		✓	✓		✓	✓	✓		✓	✓	✓
Long-billed Curlew													✓				✓					✓	✓	✓	✓	✓	✓	✓
Northern Pintail					✓		✓			✓				✓		✓	✓		✓	✓		✓	✓	✓	✓		✓	✓
Red-necked Grebe		✓	✓		✓	✓	✓	✓	✓	✓	✓					✓						✓	✓	✓	✓		✓	✓
Sandhill Crane		✓														✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓
Snowy Egret																✓		✓				✓	✓	✓	✓		✓	✓
Trumpeter Swan							✓													✓		✓	✓	✓	✓	✓	✓	✓
Western Grebe		✓	✓	✓	✓		✓		✓	✓				✓				✓	✓			✓	✓	✓	✓		✓	✓
White-faced Ibis							✓										✓	✓				✓	✓		✓		✓	✓
Wilson's Phalarope		✓	✓			✓	✓				✓			✓		✓	✓	✓	✓			✓	✓	✓	✓		✓	✓
Total SGCN		8	6	2	7	4	13	3	2	7	3		2	5	3	15	9	9	14	6		20	16	18	20	3	19	14

RECOMMENDATIONS FOR 2008

Aquatic Bird Surveys

As recommended in 2006, the 2007 surveys represented the completion of a 3-year inventory period. This inventory period should provide a useful baseline of aquatic bird use at these sites. For 2008, the delineation of survey routes at new sites is recommended to begin the next round of inventory. In addition, more effort should be focused on recruiting volunteers and citizen scientists to take over established routes. This will provide an economical and practical way to continue monitoring bird use at these sites, particularly those that have been designated as Important Bird Areas. It will also provide critical match for State Wildlife Grant funds through in-kind contribution from volunteers.

In 2007, a 3-year project was initiated to assess current harlequin duck distribution in Idaho. This project is being conducted out of the Panhandle and Clearwater regions, by the regional nongame biologists. Because of the scope and extensive work load of this project, we recommend continuing to contribute help from the IBIS crew for conducting brood counts during the month of July. Since the timing of brood counts corresponds with when the IBIS crew's workload has decreased significantly, this will enable us to continue to keep them working full time and collecting valuable data.

Marsh Bird Playback Surveys

Marsh bird surveys were successful in detecting all target species in Idaho. Similar to the aquatic bird surveys, these surveys represented the completion of a 3-year inventory period. For 2008, the delineation of survey routes at new sites is recommended to begin the next round of inventory. An effort is underway at the national level to identify sites to be monitored on an annual basis to contribute to national-level monitoring of secretive marsh birds. Once this effort is complete, we recommend focusing continued marsh bird monitoring in Idaho on these sites.

Colonial Waterbird Counts

In 2006, Idaho was the only state in the Intermountain West that was able to follow recommendations from the Intermountain West Waterbird Conservation Plan by visiting all known island colony locations and estimating nest abundance. USFWS is attempting to organize a region-wide island colony count in 2009, which would ideally launch the 3-year rotation recommended by IMWWCP. As a result, we have put our statewide colony count efforts on hold until other states in the region are able to implement monitoring. However, we recommend continuing monitoring of high priority colonies, such as those at Blackfoot Reservoir and Minidoka NWR, as well as continuing banding efforts for American white pelicans and white-faced ibis. In addition, there is a significant need for determining locations of tree nesting species (i.e., heron rookeries) and testing protocols for marsh nesting species (e.g., white-face ibis). For 2008, we recommend filling these needs by completing a database of heron rookery locations and testing protocols at a few key marsh colonies, such as Market Lake WMA and Oxford Slough WPA.

Long-billed Curlew Surveys

In 2007, all 6 survey routes in the ACEC were surveyed twice, and new routes at Grays Lake NWR were surveyed once. In addition, intensive, off-road surveys were conducted at both locations to help establish estimates of detection bias. For 2008, we recommend repeating the standardized surveys at the ACEC and at Grays Lake if feasible.

Forest Bird Surveys

In 2007 we collaborated with the U.S. Forest Service (Sawtooth National Recreation Area [SNRA]) and our own nongame regional biologist in the Salmon Region to expand the landbird component of the IBIS program. In the SNRA, we surveyed high-elevation forest habitat (whitebark pine [*Pinus albicaulis*]) for breeding woodpeckers, owls, and songbirds in conjunction with proposed restoration work (fall prescribed burning). As a result of a very active fire season, no prescribed burning was conducted in 2007 and no baseline surveys will be needed in 2008. This survey effort will likely be revived in 2009. In the Salmon region, we used standardized protocols for sampling nocturnal birds to survey for forest owls on the Salmon-Challis National Forest and adjacent lands. We recommend continuing to contribute to this effort in 2009.

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Appendix A. Maximum species counts during monthly aquatic bird surveys at wetland sites in Idaho, Spring/Summer (April - July) 2007.

Species	Panhandle	Boundary Creek WMA	Coeur d'Alene WMA	Denton Slough	Fisherman Island/Oden Bay	Hayden Lake	McArthur Lake	Morton Slough	Southwest/Magic Valley	Black's Creek Reservoir	Carey Lake WMA	Centennial Marsh WMA	Fort Boise WMA	Mormon Reservoir	Silver Creek Preserve	Southeast/Upper Snake	Camas NWR	Henry's Lake	Mesa Marsh	Mud Lake WMA	Sterling WMA
Avocet, American	--	--	--	--	1	--	--	--		15	13	5	1	15	--		65	13	--	192	33
Bittern, American	--	--	--	--	--	--	--	--		--	1	--	1	--	--		--	1	--	--	2
Bufflehead	4	8	3	3	--	--	11	4		--	--	--	--	--	8		20	61	51	3	14
Canvasback	--	--	6	--	--	--	1	--		--	--	2	--	--	4		48	12	--	23	--
Coot, American	298	174	20	--	--	--	32	17		37	355	65	307	624	8		640	166	145	2989	84
Cormorant, Double-cr.	4	--	--	--	1	--	--	12		1	--	--	7	116	--		1	60	4	113	--
Crane, Sandhill	--	--	--	--	--	--	--	--		--	7	13	--	13	10		71	12	3	3	10
Curlew, Long-billed	--	--	--	--	--	--	--	--		--	--	--	--	--	--		4	2	--	3	--
Dowitcher, Long-billed	--	1	--	--	1	--	--	--		1	42	4	--	--	--		31	--	--	--	--
Duck, Ring-necked	34	53	4	10	37	10	18			--	8	3	62	37	37		11	66	76	--	2
Duck, Ruddy	7	18	2	10	--	--	8	1		16	55	12	68	80	--		835	77	14	384	10
Duck, Unknown	26	32	--	--	--	2	15	7		--	15	52	96	287	22		167	16	--	7	63
Duck, Wood	18	135	--	--	--	5	35	1		--	--	--	5	--	--		--	--	--	--	--
Egret, Cattle	--	--	--	--	--	--	--	--		--	--	--	--	--	--		--	--	--	--	1
Egret, Great	--	--	--	--	--	--	--	--		--	2	--	34	--	--		--	--	--	--	2
Egret, Snowy	--	--	--	--	--	--	--	--		--	--	--	4	--	--		2	--	--	--	6
Gadwall	47	11	--	--	9	2	20	5		10	72	21	117	332	20		597	38	21	51	43
Godwit, Marbled	--	--	--	--	--	--	--	--		--	--	--	--	--	--		--	--	--	--	--
Goldeneye, Barrow's	--	--	--	--	--	--	--	--		--	--	--	--	--	--		11	80	2	--	--
Goldeneye, Common	7	--	1	4	--	--	3	--		--	--	--	--	--	--		--	1	2	--	--
Goldeneye, Unknown	--	--	--	--	--	--	--	--		--	--	--	--	--	--		--	3	--	--	4
Goose, Canada	109	99	78	64	78	78	98	72		8	87	89	54	74	56		371	74	26	67	66
Goose, Greater White-fr.	--	--	--	--	--	--	--	--		--	--	--	--	--	--		--	--	1	--	--
Goose, Ross's	--	--	--	--	--	--	--	--		--	--	--	--	--	--		--	--	--	--	--
Goose, Snow	--	--	--	--	--	--	--	--		--	--	--	--	--	--		1	--	--	1	--
Grebe, Clark's	--	--	--	--	--	--	--	--		--	--	--	--	1	--		--	1	--	33	--
Grebe, Clark's/Western	--	34	--	--	44	2	--	--		--	--	--	--	1	--		--	2	--	--	--

Species	Panhandle	Boundary Creek WMA	Coeur d'Alene WMA	Denton Slough	Fisherman Island/Oden Bay	Hayden Lake	McArthur Lake	Morton Slough	Southwest/Magic Valley	Black's Creek Reservoir	Carey Lake WMA	Centennial Marsh WMA	Fort Boise WMA	Mormon Reservoir	Silver Creek Preserve	Southeast/Upper Snake	Camas NWR	Henry's Lake	Mesa Marsh	Mud Lake WMA	Sterling WMA
Grebe, Eared	--	--	--	--	1	--	--	--	--	--	2	--	--	27	--	--	189	32	32	218	--
Grebe, Horned	--	--	--	--	2	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--
Grebe, Pied-billed	13	14	--	--	--	2	7	--	--	--	2	3	29	10	4	--	6	5	10	34	3
Grebe, Red-necked	2	6	--	--	2	27	2	7	--	--	4	--	--	--	--	--	--	72	--	1	--
Grebe, Small Unknown	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	320	--	--	--
Grebe, Western	1	88	47	3	--	--	--	3	1	--	--	--	3	163	--	--	28	134	--	1850	--
Gull, Bonaparte's	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5	--	--	--	--
Gull, California	--	--	--	--	1	2	--	--	--	--	7	1	--	187	9	--	14	25	--	5	--
Gull, Franklin's	7	--	--	--	--	--	--	--	--	--	1	--	--	1	--	--	116	1687	--	1475	16
Gull, Herring	--	--	--	--	--	--	--	--	--	--	4	--	--	--	--	--	--	--	--	--	--
Gull, Ring-billed	--	26	--	--	1	57	8	5	4	48	3	--	--	114	210	--	13	52	--	22	34
Gull, Unknown	--	--	--	--	3	--	--	--	4	48	4	3	1480	19	--	--	3	6	--	2	4
Heron, Great Blue	14	46	1	3	9	9	5	5	3	34	1	15	3	7	--	--	61	45	--	28	2
Ibis, White-faced	--	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	142	--	--	219	18
Killdeer	55	14	1	1	--	2	3	3	14	31	6	5	10	9	--	--	32	9	2	20	16
Loon, Common	--	--	--	--	1	--	1	--	--	--	--	--	--	1	--	--	--	1	--	1	--
Loon, Pacific	--	1	--	--	--	--	--	--	--	--	--	--	--	3	--	--	19	--	--	--	--
Loon, Unknown	--	--	--	--	--	--	--	--	--	--	--	--	--	112	--	--	--	--	--	--	--
Mallard	185	155	6	12	16	32	7	7	15	98	40	150	56	50	--	--	304	50	17	55	133
Merganser, Common	--	1	--	--	6	--	--	--	--	--	--	--	--	--	4	--	--	43	--	4	--
Merganser, Hooded	7	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	2
Merganser, Red-breasted	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	19	--
Merganser, Unknown	2	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Night-Heron, Black-cr.	--	--	--	--	--	--	--	--	--	--	2	--	14	20	--	--	4	2	--	11	--
Pelican, American White	18	--	--	--	--	--	1	--	--	--	34	--	4	133	--	--	33	166	--	74	2
Phalarope, Unknown	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	11	--
Phalarope, Wilson's	4	4	--	--	2	--	--	--	5	15	50	1	47	--	--	--	222	2	--	15	6
Pintail, Northern	--	--	--	--	6	--	--	--	5	7	8	--	--	8	--	--	147	9	--	29	18

Species	Panhandle	Boundary Creek WMA	Coeur d'Alene WMA	Denton Slough	Fisherman Island/Oden Bay	Hayden Lake	McArthur Lake	Morton Slough	Southwest/Magic Valley	Black's Creek Reservoir	Carey Lake WMA	Centennial Marsh WMA	Fort Boise WMA	Mormon Reservoir	Silver Creek Preserve	Southeast/Upper Snake	Camas NWR	Henry's Lake	Mesa Marsh	Mud Lake WMA	Sterling WMA
Rail, Virginia	--	6	--	--	--	--	2	--	--	18	3	2	--	10	3	--	--	1	--	--	
Redhead	25	18	5	--	--	--	15	3	3	--	2	73	4	--	316	176	6	250	47	--	
Sandpiper, Least	--	--	--	--	--	--	--	--	--	--	2	--	--	--	--	--	--	--	--	--	
Sandpiper, Spotted	9	1	3	4	2	1	--	--	1	6	--	2	--	3	5	3	--	15	--	--	
Sandpiper, Unknown	--	--	--	--	5	--	--	--	1	13	--	3	7	--	--	--	--	--	--	--	
Sandpiper, Western	--	--	--	--	--	--	--	--	--	--	--	--	--	--	34	--	--	--	--	--	
Scaup, Greater	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	
Scaup, Lesser	--	--	--	--	--	--	--	--	--	--	13	--	19	5	121	709	33	52	43	--	
Scaup, Unknown	--	4	--	--	--	--	1	--	--	--	--	--	6	--	--	20	--	--	3	--	
Shoveler, Northern	16	16	--	--	--	--	14	2	7	10	4	20	--	246	17	--	18	34	--	--	
Snipe, Wilson's	2	11	--	--	--	5	--	--	--	3	12	--	1	10	--	8	2	2	5	--	
Sora	5	8	--	--	--	4	--	--	--	12	9	--	--	5	47	12	1	2	4	--	
Stilt, Black-necked	--	--	--	--	--	--	--	--	4	4	47	8	5	--	16	5	--	22	18	--	
Swan, Trumpeter	--	--	--	--	--	--	--	--	--	--	--	--	--	--	19	2	2	2	9	--	
Swan, Tundra	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	
Swan, Unknown	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Teal, Blue-winged	10	4	--	--	2	2	--	--	--	4	2	--	--	--	69	4	--	7	19	--	
Teal, Cinnamon	28	30	--	2	4	7	3	5	76	74	34	144	16	91	18	24	70	31	--	--	
Teal, Green-winged	13	23	--	8	--	3	--	1	4	5	--	6	6	49	3	8	5	28	--	--	
Teal, Unknown	--	1	--	--	--	--	--	--	--	--	1	--	--	7	7	2	--	4	8	--	
Tern, Black	10	45	--	--	--	--	--	--	--	5	3	--	--	--	--	--	--	9	--	--	
Tern, Caspian	--	--	--	--	2	--	--	--	--	4	--	--	25	2	--	9	--	--	--	--	
Tern, Forster's	--	4	--	1	--	--	--	--	--	--	--	--	--	--	3	23	--	12	--	--	
Tern, Unknown	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--	--	--	--	
Wigeon, American	41	9	--	12	2	12	5	1	2	4	3	12	3	307	101	16	31	33	--	--	
Willet	--	--	--	--	--	--	--	--	--	10	10	--	14	1	57	6	--	8	3	--	
Yellowlegs, Greater	3	--	--	--	--	--	--	--	--	4	--	--	--	1	3	--	--	--	--	--	
Yellowlegs, Lesser	3	--	--	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--	--	--	

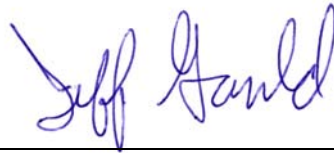
Appendix B. Waterbird species detected during aquatic bird surveys in Idaho, November 2006 – October 2007.

Common Name	Scientific Name	Common Name	Scientific Name
Avocet, American	<i>Recurvirostra americana</i>	Mallard	<i>Anas platyrhynchos</i>
Bittern, American	<i>Botaurus lentiginosus</i>	Merganser, Common	<i>Mergus merganser</i>
Bufflehead	<i>Bucephala albeola</i>	-----, Hooded	<i>Lophodytes cucullatus</i>
Canvasback	<i>Aythya valisineria</i>	Merganser, Red-breasted	<i>Mergus serrator</i>
Coot, American	<i>Fulica americana</i>	Night-Heron, Black-cr.	<i>Nycticorax nycticorax</i>
Cormorant, Double-cr.	<i>Phalacrocorax auritus</i>	Pelican, American White	<i>Pelecanus erythrorhynchos</i>
Crane, Sandhill	<i>Grus canadensis</i>	Phalarope, Red-necked	<i>Phalaropus lobatus</i>
Curlew, Long-billed	<i>Numenius americanus</i>	-----, Wilson's	<i>Phalaropus tricolor</i>
Dowitcher, Long-billed	<i>Limnodromus scolopaceus</i>	Pintail, Northern	<i>Anas acuta</i>
Duck, Ring-necked	<i>Aythya collaris</i>	Plover, Black-bellied	<i>Pluvialis squatarola</i>
-----, Ruddy	<i>Oxyura jamaicensis</i>	-----, Semipalmated	<i>Charadrius semipalmatus</i>
-----, Wood	<i>Aix sponsa</i>	Rail, Virginia	<i>Rallus limicola</i>
Dunlin	<i>Calidris alpina</i>	Redhead	<i>Aythya americana</i>
Egret, Cattle	<i>Bubulcus ibis</i>	Sandpiper, Bairds	<i>Calidris bairdii</i>
-----, Great	<i>Ardea alba</i>	-----, Least	<i>Calidris minutilla</i>
---, Greater White-fronted	<i>Anser albifrons</i>	-----, Pectoral	<i>Calidris melanotos</i>
-----, Snowy	<i>Egretta thula</i>	-----, Semipalmated	<i>Calidris pusilla</i>
Gadwall	<i>Anas strepera</i>	-----, Solitary	<i>Tringa solitaria</i>
Godwit, Marbled	<i>Limosa fedoa</i>	-----, Spotted	<i>Actitis macularia</i>
Goldeneye, Barrow's	<i>Bucephala islandica</i>	-----, Western	<i>Calidris mauri</i>
-----, Common	<i>Bucephala clangula</i>	Scaup, Lesser	<i>Aythya affinis</i>
Goose, Canada	<i>Branta canadensis</i>	Shoveler, Northern	<i>Anas clypeata</i>
-----, Snow	<i>Chen caerulescens</i>	Snipe, Wilson's	<i>Gallinago delicata</i>
Grebe, Clark's	<i>Aechmophorus clarkii</i>	Sora	<i>Porzana carolina</i>
-----, Eared	<i>Podiceps nigricollis</i>	Stilt, Black-necked	<i>Himantopus mexicanus</i>
-----, Horned	<i>Podiceps auritus</i>	Swan, Trumpeter	<i>Cygnus buccinator</i>
-----, Pied-billed	<i>Podilymbus podiceps</i>	-----, Tundra	<i>Cygnus columbianus</i>
-----, Red-necked	<i>Podiceps grisegena</i>	Teal, Blue-winged	<i>Anas discors</i>
-----, Western	<i>Aechmophorus occidentalis</i>	-----, Cinnamon	<i>Anas cyanoptera</i>
Gull, Bonaparte's	<i>Larus philadelphia</i>	-----, Green-winged	<i>Anas crecca</i>
-----, California	<i>Larus californicus</i>	Tern, Black	<i>Chlidonias niger</i>
-----, Franklin's	<i>Larus pipixcan</i>	-----, Caspian	<i>Sterna caspia</i>
-----, Herring	<i>Larus argentatus</i>	-----, Common	<i>Sterna hirundo</i>
-----, Ring-billed	<i>Larus delawarensis</i>	----, Forster's	<i>Sterna forsteri</i>
Heron, Great Blue	<i>Ardea herodias</i>	Wigeon, American	<i>Anas americana</i>
Ibis, White-faced	<i>Plegadis chihi</i>	Willet	<i>Catoptrophorus semipalmatus</i>
Killdeer	<i>Charadrius vociferus</i>	Yellowlegs, Greater	<i>Tringa melanoleuca</i>
Loon, Common	<i>Gavia immer</i>	-----, Lesser	<i>Tringa flavipes</i>

Submitted by: Colleen Moulton

Approved by:

IDAHO DEPARTMENT OF FISH AND GAME



Jeff Gould, Chief
Bureau of Wildlife



Rex Sallabanks, Manager
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